CENWP-PM-E

Memorandum for: Portland District Operations Division

Date: June 24, 2009

Subject: Project Review Group Technical Memorandum for the Sediment Characterization Report for the Federal Project Post Office Bar

Project Description
The Willamette River federal navigation channel (FNC) project is 11.6 miles long; from the confluence with the Columbia River (RM 0.0) to near the Broadway Bridge in Portland, Oregon. Congressional authorization is to a depth of 43-feet (-43-feet CRD) (plus advanced maintenance) and a 600 to 1,900-ft. width, but it is currently maintained to a 40-ft. depth (plus 2-feet advanced maintenance), with an "as needed" width for users.

The proposed dredging is for sediment shoals within the FNC at approximate river mile (RM) 2.1-2.4, Post Office Bar. The proposed dredging prism (DP) varies from 4 to 7-feet deep, which includes 2-feet advanced and contains approximately 50,000 CY of sandy-silt. The Corps will utilize a clamshell dredge to conduct the work. Environmental dredging BMPs will be utilized to minimize turbidity during dredging.

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Sampling Description: 2 DMMUs, 12 discrete samples (over sampling due to high rank of surrounding area). Each of the 6 vibra-core samples were divided horizontally for a total of 12 discrete analyses; 3 analyses will represent each of the following: the dredging prism, the new surface material (NSM), the potential surface sloughing material and the potential at depth sloughing material (one-half depth of the dredging prism).

Testing Results and SL Exceedences: Of primary concern to the resource agencies (NMFS, ODEQ, and Ecology) were DDT and PCB contamination. These contaminants increased with depth and would result in higher levels in the NSM than in the dredge prism. Exceedences of PCBs were above the 2008 SLs and there was an increase of PCB concentrations from the dredge prism to the NSM [Total PCBs – Core No. 3: 56 ppb to 154 ppb; Core No. 5: ND to 79 ppb]. Increase in DDT from the dredge prism to the NSM [Total DDX – Core No. 3: 9.4 ppb to 14.5 ppb; Core No. 5: 8.4 ppb to 11.9 ppb]. Cd and Zn SLs were also exceeded and increased with depth in Core No. 3.

Disposal Description: The Corps will dispose of the dredged material at a confined, upland disposal facility; there will be no return water to the Willamette River.

Federal SL? Decatur

Applicable Authorities Governing the Project: NEPA; Congressional authorization [to maintain a navigational depth of -43-feet CRD (plus advanced maintenance)]; Section 7 of the ESA; Section 305 of the MSA; Section 106 of the NHPA; et al.

Anticipated Incidental Fallback of Dredging Residuals: 3 to 4 inches, based on 5% fallback from bucket + residuals from upslope (represented by Core Nos. 2, 4, and 6).

Site-Specific Accretion Rate: 4 inches (10 cm)/ year, w/ peak accretion during the fall and winter months.

PRG Recommendations

1. Proceed with sampling to collect enough material for bioaccumulation studies (utilize micro-lipid methods per Inouye, if possible).

2. Analyze two composite samples of the dredge prism around Cores 3 and 5 and analyze for the full suite of SEF CoCs. This testing would better characterize the dredging residuals. Also analyze NSM per Inouye's recommendations in anticipation of bioaccumulation.

If the corps in cooperation with EPA determines that dredging risk can be managed:

3. The Corps needs to further coordinate with the EPA to determine approximately what the PCB cleanup level will be for the Lower Willamette R. It is not unreasonable to expect EPA to provide some guidance to its sister agency based on preliminary data. Based on coordination with EPA cleanup authorities, the Corps needs to determine if the passive cap over would *likely* be below cleanup levels (<100 or ≥100 ppb). This would allow the Corps to better evaluate the risk associated with a passive cap. Based on the dredge prism maximum value (56 ppb total PCBs), it would be reasonable to assume that this is likely the maximum level of contamination that would be deposited during passive capping. This is also likely the maximum value in the dredging residuals as well (see No. 2, above).

4. In support of a decision to dredge, the Corps needs to flesh-out their risk assessment (RA) for potential bioaccumulation pathways to strengthen our conceptual site model (CSM) and our administrative record. The RA should contain the following elements:

   a. A description of interagency coordination with EPA that demonstrates the Corps' commitment to protecting the aquatic environment and executing our mission.

   b. A determination of whether or not there are any benthic organisms in the current surface that would result in bioaccumulation to higher trophic levels (fish, birds, mammals, humans).

   c. Identify the fish that would forage on benthic organisms in this area and determine which species would actually be caught and consumed.

   d. Identify the duration of NSM exposure to the water column and how long the NSM will actually be a risk. Capping by dredged residuals and passive capping should be estimated.

   e. To support the RA, develop a WQ monitoring plan which measures parameters consistent with ODEQ requirements (turbidity, contaminant release, others?)

f. In support of the RA, develop an aggressive post-dredge monitoring plan that measures contaminant levels in the new surface directly after dredging, and every 3 months thereafter until testing indicates that the dredged area is the same as, or better than the initially characterized dredge prism.

g. Additionally, the Corps should conduct pre-dredge sampling both upstream and downstream to determine baseline conditions prior to dredging. Downstream samples should be taken in shoaling areas located down-current of the dredge site. Upstream samples should be taken from those areas most likely to in-fill the dredged area. The upslope samples characterized by the Corps should cover the effects of side slope sloughing, but the Corps may want to take additional samples beyond the characterized area in case additional shoreward material sloughs into or adjacent to the dredge area.

h. Determine what other factors would compromise the integrity of the passive cap (e.g., prop wash), and are there navigational restrictions that could be placed over the first 1 to 2 years of operation to ensure that the NSM is not re-exposed.

i. Postpone dredging until the end of the ODFW-recommended in-water work period (after October). In addition to capping by the dredging residuals, NSM exposure would be limited, since the accretion rates would be higher during the fall and winter months.

j. Develop a contingency plan for capping should it be determined that dredging residuals and passive capping will not address contamination issues. Capping with heavier material such as gravel or capping at a deeper depth to reduce scour could provide some protection by minimizing the concentration of contaminants.

If the corps in cooperation with EPA determines that risk cannot be managed:

5. Proceed with bioaccumulation studies.

The PRG members that reviewed the project were: James McMillan, U.S. Army Corps of Engineers; Genet Belete, Oregon Department of Environmental Quality, Dan Gambetta, National Marine Fisheries Service, Laura Inouye, Washington Department of Ecology and Jonathan Freedman and Chip Humphries of the Environmental Protection Agency, Region 10.

If either the Corps project manager or the applicant has any questions regarding this decision, please feel free to contact Marci Cook at (503) 808-4765 or via e-mail at: marci.e.cook@usace.army.mil.

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